CONTENTS OF VOLUME 18

Number 1

B. MENÉNDEZ, W. ZHU and T.-F. WONG — 1 Micromechanics of brittle faulting and cataclastic flow in Berea sandstone

K. MICHIBAYASHI — 17 The role of intragranular fracturing on grain size reduction in feldspar during mylonitization

P. SRIVASTAVA and G. MITRA — 27 Deformation mechanisms and inverted thermal profile in the North Almora Thrust mylonite zone, Kumaon Lesser Himalaya, India

J.-M. DANIEL, L. JOLIVET, B. GOFFE and C. POINSSOT — 41 Crustal-scale strain partitioning: footwall deformation below the Alpine Oligo-Miocene detachment of Corsica

F. J. MARTÍNEZ, J. CARRERAS, M. L. ARBOLEYA and C. DIETSCH — 61 Structural and metamorphic evidence of local extension along the Vivero fault coeval with bulk crustal shortening in the Variscan chain (NW Spain)

D. G. A. M. AERDEN — 75 The pyrite-type strain fringes from Lourdes (France): indicators of Alpine thrust kinematics in the Pyrenees

A. R. MOUSTAFA — 93 Internal structure and deformation of an accommodation zone in the northern part of the Suez rift

X. ZHANG and D. J. SANDERSON — 109 Numerical modelling of the effects of fault slip on fluid flow around extensional faults

L. K. STEWART — 121 Behaviour of spherical rigid objects and passive markers during bulk inhomogeneous shortening of a fluid

Brevia

131 Book Review

I International Newsletter 11: January 1996

Number 2/3

Special Issue: Scaling Laws for Fault and Fracture Populations—Analyses and Applications

v Introduction

Section I
Collection, analysis and comparison of fault and fracture data sets

G. YIELDING, T. NEEDHAM and H. JONES — 135 Sampling of fault populations using sub-surface data: a review

R. M. CLARK and S. J. D. COX — 147 A modern regression approach to determining fault displacement–length scaling relationships

Section II
Extrapolation and interpolation of scaling relationships

T. NEEDHAM, G. YIELDING and R. FOX — 155 Fault population description and prediction using examples from the offshore U.K.

R. MARRETT — 169 Aggregate properties of fracture populations

H. FOSSEN and A. RØRNES 179 Properties of fault populations in the Gullfaks Field, northern North Sea

A. NICOL, J. J. WALSH, J. WATTERSON and P. A. GILLESPIE 191 Fault size distributions—are they really power-law?

J. WATTERSON, J. J. WALSH, P. A. GILLESPIE and S. EASTON 199 Scaling systematics of fault sizes on a large-scale range fault map

Section III
Growth of fault arrays and accumulation of fault displacement

J. JACKSON, R. NORRIS and J. YOUNGSON 217 The structural evolution of active fault and fold systems in central Otago, New Zealand: evidence revealed by drainage patterns

A. NICOL, J. WATTERSON, J. J. WALSH and C. CHILDS 235 The shapes, major axis orientations and displacement patterns of fault surfaces

C. S. MANSFIELD and J. A. CARTWRIGHT 249 High resolution fault displacement mapping from three-dimensional seismic data: evidence for dip linkage during fault growth

S. F. WOJTAL 265 Changes in fault displacement populations correlated to linkage between faults

T. T. CLADOUHOS and R. MARRETT 281 Are fault growth and linkage models consistent with power-law distributions of fault lengths?

E. J. M. WILLEMSE, D. D. POLLARD and A. AYDIN 295 Three-dimensional analyses of slip distributions on normal fault arrays with consequences for fault scaling

D. C. P. PEACOCK and D. J. SANDERSON 311 Effects of propagation rate on displacement variations along faults

T. A. LITTLE 321 Faulting-related displacement gradients and strain adjacent to the Awatere strike-slip fault in New Zealand

Section IV
Mechanisms of brittle deformation

S. A. WILSON, J. R. HENDERSON and I. G. MAIN 343 A cellular automaton fracture model: the influence of heterogeneity in the failure process

J. D. JOHNSTON and K. J. W. McCAFFREY 349 Fractal geometries of vein systems and the variation of scaling relationships with mechanism

S. D. KNOTT, A. BEACH, P. J. BROCKBANK, J. L. BROWN, J. E. McCALLUM and A. I. WELBON 359 Spatial and mechanical controls on normal fault populations

R. A. SCHULTZ and A. N. FORI 373 Fault-length statistics and implications of graben sets at Candor Mensa, Mars

Number 4

M. CORSINI, A. VAUCHEZ and R. CABY 385 Ductile duplexing at a bend of a continental-scale strike-slip shear zone: example from NE Brazil

B. A. WORLEY and C. J. L. WILSON 395 Deformation partitioning and foliation reactivation during transpressional orogenesis, an example from the Central Longmen Shan, China

S. F. CHEN and C. J. L. WILSON 413 Emplacement of the Longmen Shan Thrust–Nappe Belt along the eastern margin of the Tibetan Plateau

R. G. ESPINA, J. L. ALONSO and J. A. PULGAR 431 Growth and propagation of buckle folds determined from syntectonic sediments (the Ubierna Fold Belt, Cantabrian Mountains, N Spain)

S. G. ERICKSON 443 Influence of mechanical stratigraphy on folding vs faulting

Y. ZHANG, M. W. JESSELL and B. E. HOBBS 451 Experimental and numerical studies of the accommodation of strain incompatibility on the grain scale

T. W. KIDAN and J. W. COSGROVE 461 The deformation of multilayers by layer-normal compression: an experimental investigation

M. K. JOHNS and S. MOSHER 475 Physical models of regional fold superposition: the role of competence contrast

R. C. BREWER and P. M. KENYON 493 Balancing salt dome uplift and withdrawal basin subsidence in cross-section

T. J. FOWLER 505 The properties and geological environments of helicoids: axially symmetric surfaces in torsional and non-torsional deformations

Brevia

G. CELLO and S. MAZZOLI 519 Kinematics of primary contacts between low- and relatively high-pressure rocks in orogens

M. MARTÍN-MARTÍN, B. EL MAMOUNE, A. MARTÍN-ALGARRA and J. A. MARTÍN-PÉREZ 523 The Internal–External Zone Boundary in the eastern Betic Cordillera, SE Spain: Discussion

L. LONERGAN, J. PLATT and L. GALLAGHER 525 The Internal–External Zone Boundary in the eastern Betic Cordillera, SE Spain: Reply

529 Book Reviews

Number 5

J.-L. EPARD and A. ESCHER 533 Transition from basement to cover: a geometric model

G. PENNACCHIONI 549 Progressive eclogitization under fluid-present conditions of pre-Alpine mafic granulites in the Austroalpine Mt Emilius Klippe (Italian Western Alps)

K. KOBAYASHI 563 Rotation of slip direction of the Atokura Nappe viewed from micro-structural analyses of brittle shear zones in the Sambagawa belt, Southwest Japan

M. A. McNAUGHT and G. MITRA 573 The use of finite strain data in constructing a retrodeformable cross-section of the Meade thrust sheet, southeastern Idaho, U.S.A.

A. D. HUERTA and D. W. RODGERS 585 Kinematic and dynamic analysis of a low-angle strike-slip fault: the Lake Creek fault of south-central Idaho

P. J. UMHOEFER and K. A. STONE 595 Description and kinematics of the SE Loreto basin fault array, Baja California Sur, Mexico: a positive test of oblique-rift models

NEI-CHE HO, D. R. PEACOR and B. A. VAN DER PLUIJM 615 Contrasting roles of detrital and authigenic phyllosilicates during slaty cleavage development

R. BURKS and S. MOSHER 625 Multiple crenulation cleavages as kinematic and incremental strain indicators

Y. ZHANG, B. E. HOBBS, A. ORD and H. B. MÜHLHAUS 643 Computer simulation of single-layer buckling

S. R. BROWN and R. L. BRUHN 657 Formation of voids and veins during faulting

H. FOSSEN and R. H. GABRIELSEN 673 Experimental modeling of extensional fault systems by use of plaster

M. HERWEGH and M. R. HANDY 689 The evolution of high-temperature mylonitic microfabrics: evidence from simple shearing of a quartz analogue (norcamphor)

Brevia

S. R. PATERSON and T. K. FOWLER, JR 711 Local displacement of diapir contacts and its importance to pluton emplacement study: Discussion

W. M. SCHWERDTNER 713 Local displacement of diapir contacts and its importance to pluton emplacement study: Reply

715 Book Reviews

Number 6

K. SCHULMANN, B. MLČOCH and R. MELKA 719 High-temperature microstructures and rheology of deformed granite, Erzgebirge, Bohemian Massif

A. F. M. KISTERS, E. G. CHARLESWORTH, R. L. GIBSON and C. R. ANHAEUSSER 735 Steep structure formation in the Okiep Copper District, South Africa: bulk inhomogeneous shortening of a high-grade metamorphic granite-gneiss sequence

D. MARQUER, N. CHALLANDES and T. BAUDIN 753 Shear zone patterns and strain distribution at the scale of a Penninic nappe: the Suretta nappe (Eastern Swiss Alps)

T. MacCREADY 765 Misalignment of quartz c-axis fabrics and lineations due to oblique final strain increments in the Ruby Mountains core complex, Nevada

M. KRABBENDAM and A. G. LESLIE 777 Folds with vergence opposite to the sense of shear

G. I. ALSOP, R. E. HOLDSWORTH and R. A. STRACHAN 783 Transport-parallel cross folds within mid-crustal Caledonian thrust stack, northern Scotland

D. G. COOK and B. C. MacLEAN 791 Mid-continent tectonic inversions, Northwest Territories, Canada

M. WARRAK 803 Origin of the Hafit structure: implications for timing the Tertiary deformation in the Northern Oman Mountains

J. E. ANDERSON 819 The Neogene structural evolution of the western margin of the Pelagian Platform, central Tunisia

G. P. ROBERTS 835 Variation in fault-slip directions along active and segmented normal fault systems

Y. PARK and W. D. MEANS 847 Direct observation of deformation processes in crystal mushes

Brevia

B. DEN BROK — 859 The effect of crystallographic orientation on pressure solution in quartzite

861 Book Reviews

I Erratum

Number 7

A. ARANGUREN, J. CUEVAS and J. M. TUBÍA — 863 Composite magnetic fabrics from S–C mylonites

O. P. WENNBERG — 871 Superimposed fabrics due to reversal of shear sense: an example from the Bergen Arc Shear Zone, western Norway

S. MARSHAK and T. FLÖTTMANN — 891 Structure and origin of the Fleurieu and Nackara Arcs in the Adelaide fold–thrust belt, South Australia: salient and recess development in the Delamerian Orogen

R. W. H. BUTLER and S. FREEMAN — 909 Can crustal extension be distinguished from thrusting in the internal parts of mountain belts? A case history of the Entrelor shear zone, Western Alps

L. LAN and P. HUDLESTON — 925 Rock rheology and sharpness of folds in single layers

J. M. CRESPI and Y.-C. CHAN — 933 Vein reactivation and complex vein intersection geometries in the Taconic slate belt

L. ARBARET, H. DIOT and J.-L. BOUCHEZ — 941 Shape fabrics of particles in low concentration suspensions: 2D analogue experiments and application to tiling in magma

R. E. SMITH and D. V. WILTSCHKO — 951 Generation and maintenance of abnormal fluid pressures beneath a ramping thrust sheet: isotropic permeability experiments

971 Book Reviews

I International Newsletter 12: July 1996

Number 8

L. B. GOODWIN and P. F. WILLIAMS — 975 Deformation path partitioning within a transpressive shear zone, Marble Cove, Newfoundland

D. CHARDON, P. CHOUKROUNE and M. JAYANANDA — 991 Strain patterns, décollement and incipient sagducted greenstone terrains in the Archaean Dharwar craton (south India)

U. RILLER, A. R. CRUDEN and W. M. SCHWERDTNER — 1005 Magnetic fabric and microstructural evidence for tectonothermal overprint of the early Proterozoic Murray pluton, central Ontario, Canada

M. E. STEWART and W. J. TAYLOR — 1017 Structural analysis and fault segment boundary identification along the Hurricane fault in southwestern Utah

R. H. SIBSON — 1031 Structural permeability of fluid-driven fault–fracture meshes

J.-J. LEE and R. L. BRUHN 1043 Structural anisotropy of normal fault surfaces

L.-J. AN and C. G. SAMMIS 1061 Development of strike-slip faults: Shear experiments in granular materials and clay using a new technique

S. K. GHOSH 1079 Refolding by flexural flow

T. MASUDA and N. MIZUNO 1089 Deflection of non-Newtonian simple shear flow around a rigid cylindrical body by the Finite Element Method

Brevia

A. CRESPO-BLANC, J. M. MARTÍNEZ-MARTÍNEZ and J. M. AZAÑÓN 1101 Distinguishing lateral folds in thrust systems: examples from Corbières (SW France) and Betic Cordillera (SE Spain): Discussion

D. FRIZON DE LAMOTTE and J.-C. GUÉZOU 1107 Distinguishing lateral folds in thrust systems: examples from Corbières (SW France) and Betic Cordillera (SE Spain): Reply

Number 9

iii Editorial

Y. ZHENG, Q. ZHANG, Y. WANG, R. LIU, S. G. WANG, G. ZUO, S. Z. WANG, B. LKAASUREN, G. BADARCH and Z. BADAMGARAV 1111 Great Jurassic thrust sheets in Beishan (North Mountains)—Gobi areas of China and southern Mongolia

M. THIBAUT, J. P. GRATIER, M. LÉGER and J. M. MORVAN 1127 An inverse method for determining three-dimensional fault geometry with thread criterion: application to strike-slip and thrust faults (Western Alps and California)

R. A. SCHULTZ 1139 Relative scale and the strength and deformability of rock masses

L. L. PRYER and P.-Y. F. ROBIN 1151 Differential stress control on the growth and orientation of flame perthite: a palaeostress-direction indicator

Brevia

S. H. TREAGUS, P. J. HUDLESTON and L. LAN 1167 Non-ellipsoidal inclusions as geological strain markers and competence indicators

J. V. SMITH 1173 En échelon sigmoidal vein arrays hosted by faults

1181 Book Reviews

Number 10

C. PAULI, S. M. SCHMID and R. P. HEILBRONNER 1183 Fabric domains in quartz mylonites: localized three dimensional analysis of microstructure and texture

A. E. GATES 1205 Megaboudins and lateral extension along the leading edge of a crystalline thrust sheet, Hudson Highlands, New York, U.S.A.

G. GUTIÉRREZ-ALONSO 1217 Strain partitioning in the footwall of the Somiedo Nappe: structural evolution of the Narcea Tectonic Window, NW Spain

C. J. NORTHRUP and B. C. BURCHFIEL 1231 Orogen-parallel transport and vertical partitioning of strain during oblique collision, Efjorden, north Norway

J. McL. MILLER and D. R. GRAY 1245 Structural signature of sediment accretion in a Palaeozoic accretionary complex, southeastern Australia

Brevia

I. STEWART 1259 A rough guide to limestone fault scarps

C. MONACO and L. TORTORICI 1265 Clay diapirs in Neogene–Quaternary sediments of central Sicily: evidence for accretionary processes

S. A. STEWART 1271 Influence of detachment layer thickness on style of thin-skinned shortening

G. CELLO and S. MAZZOLI 1275 Extensional processes driven by large-scale duplexing in collisional regimes

C. W. PASSCHIER and P. R. WILLIAMS 1281 Conflicting shear sense indicators in shear zones; the problem of non-ideal sections

1285 Book Reviews

Number 11

J. V. SMITH 1291 Geometry and kinematics of convergent conjugate vein array systems

M. NEMCOK and R. GAYER 1301 Modelling palaeostress magnitude and age in extensional basins: a case study from the Mesozoic Bristol Channel Basin, U.K.

J. GARĆIA-SANSEGUNDO 1315 Hercynian structure of the Axial Zone of the Pyrenees: the Aran Valley cross-section (Spain–France)

W. KURZ and F. NEUBAUER 1327 Deformation partitioning during updoming of the Sonnblick area in the Tauern Window (Eastern Alps, Austria)

J. HIPPERTT and M. EGYDIO-SILVA 1345 New polygonal grains formed by dissolution–redeposition in quartz mylonite

P.-Y. CHOI, J. ANGELIER and B. SOUFFACHÉ 1353 Distribution of angular misfits in fault-slip data

Brevia

B. DEN BROK and J. H. KRUHL 1369 Ductility of garnet as an indicator of extremely high temperature deformation: Discussion

S. JI and J. MARTIGNOLE 1375 Ductility of garnet as an indicator of extremely high temperature deformation: Reply

Number 12

I. K. KOUKOUVELAS and T. T. DOUTSOS 1381 Implications of structural segmentation during earthquakes: the 1995 Egion earthquake, Gulf of Corinth, Greece

C. CHILDS, A. NICOL, J. J. WALSH and J. WATTERSON 1389 Growth of vertically segmented normal faults

T. FOWLER 1399 Flexural-slip generated bedding parallel veins from central Victoria, Australia

G. S. LISTER and A. RAOUZAIOS 1417 The tectonic significance of a porphyroblastic blueschist facies overprint during Alpine orogenesis: Sifnos, Aegean Sea, Greece

L. C. VANDENBERG and G. S. LISTER 1437 Structural analysis of basement tectonites from the Aegean metamorphic core complex of Ios, Cyclades, Greece

S. R. WALLIS and J. H. BEHRMANN 1455 Crustal stacking and extension recorded by tectonic fabrics of the SE margin of the Tauern Window, Austria

J. C. WHITE 1471 Transient discontinuities revisited: pseudotachylyte, plastic instability and the influence of low pore fluid pressure on deformation processes in the mid-crust

T. MASUDA and N. MIZUNO 1487 Computer modelling of mantled porphyroclasts in Newtonian and non-Newtonian simple shear viscous flows

Brevia

D. H. OLIVER and J. W. GOODGE 1493 Leucoxene fish as a micro-kinematic indicator